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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/824,866

04/15/2004

Hakam D. Hussein

STL11730

7077

7590
Seagate Technology LLC
1280 Disc Drive
Shakopee, MN 55379

07/10/2007

EXAMINER

RUTLAND WALLIS, MICHAEL

ART UNIT	PAPER NUMBER
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2836

MAIL DATE	DELIVERY MODE
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07/10/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/824,866

Applicant(s)

HUSSEIN ET AL.

Examiner

Michael Rutland-Wallis

Art Unit

2836

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 May 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 April 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____

- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 5/31/2007 has been entered.

Response to Arguments

Applicant amendments to claim 10 are sufficient to withdraw the previous objection.

Applicant's arguments filed 5/31/2007 have been fully considered but they are not persuasive.

Applicant have amended independent claims 1, 13, 19 to further require the connector to include a first contact for connecting to a first power supply contact of the source, a second contact for connecting to a logic output from the source, and a third contact for connecting to a second power supply contact of the source. Applicant alleges the cited teachings of Ngo do not disclose a logic output from a source of

energization controlling or enabling a limited inrush during a second time interval. In response Ngo teaches the inclusion of optional impedances Z1-Z3 in Fig. 2 and 5. Ngo describes these connections to be used for programming the control electronics (col. 5 line 55) to control the time constants of the system.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ngo (U.S. Pat. No 6,525,515)

With respect to claims 1, 13-15 and 19 Ngo teaches An inrush current controller for a device (hot-pluggable subsystem), comprising: a connector (circuitry connecting the supply and the device in Fig. 2) for plugging the device into a source of energization (input supply 42); the connector including a first connection (connection to positive terminal of source) for connecting to a first power supply contact of the source (item 42), a second connection (seen connecting to the supply and connecting to impedances Z1-Z3) for connecting to a logic output from the source, and a third connection (connection to negative terminal of source) for connecting to a second power supply contact of the source; an impedance (formed when item N40 conducts AC voltage) having a current

input that couples to a first contact (negative power terminal) of the connector, an impedance control input (gate terminal), and a current output (source) coupling with the device; and an impedance control circuit (item 44) having a logic input (UVLO and control input seen entering the upper portion of the control electronics) coupling to a second contact (positive power terminal) of the connector, and having an impedance control output (see exiting the right of the control electronics item 44) connected to the impedance control input (gate), the impedance control output forcing the impedance OFF during a first time (t_0 - t_1) interval controlled by a first timer (item 57), and the logic output enabling a limited inrush (exponential rate of change col. 7 lines 43-48 via programming time constants to the control electronics) at the current input during a second time (t_1 - t_2) interval controlled by a second timer (formed with sensing input R40, item A2, N31 and R53 see col. 7 lines 40-45). Ngo discloses only circuitry and a block diagram schematic of the system and does not illustrate the connector at level to show the details of the mating contacts. The inclusion of the contacts would have been obvious to one of ordinary skill in the art at the time of the invention to provide a secure connection to allow power to flow to the device and to program the control electronics shown in Ngo.

With respect to claim 3 and 20 Ngo teaches the impedance may continuously or step-wise variable (see Fig. 4 col. 7 lines 43-48) as a function of the control input.

With respect to claims 4, 17 and 21 Ngo teaches the first timer (item 57) couples to the current input (see Fig. 5) and the impedance control output (gate), and provides a first timer output that forces the impedance OFF during the first time interval (t_0 - t_1); and

an inrush current limit circuit (N40) coupled to the logic input and the impedance control output, and providing an inrush current limit (rate of change of voltage ramp) output controlled by the second timer (formed with sensing input R40, item A2, N31 and R53 see col. 7 lines 40-45).

With respect to claim 12 Ngo teaches the impedance comprises a transistor (N40).

With respect to claims 2 and 16 Ngo teaches the device may be a computer or other electronic system and the source of energization comprises a host system. Ngo does not describe a data storage device. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Ngo to further include the use of such a device if in fact such is not already present in Ngo in order to provide power safety to sensitive computing equipment.

With respect to claims 5 and 22 Ngo teaches the first timer (57) output controls the inrush current limit output to the impedance control output (see col. 9 lines 1-5). Ngo does not describe the control as an override instead teaches of the holding of the current limiting operation. It would have been obvious to one of ordinary skill in the art at the time of the invention to use an override type control scheme in order to prevent the power from being supplied until a reliable power signal has been determined.

With respect to claim 6 Ngo is silent on the logic of the circuit as being open or closed after the first time interval. It would have been obvious to one of ordinary skill in the art at the time of the invention to use an open logic in order to signal the expiration of the first time interval in order to control the impedance and limit inrush current.

With respect to claims 7 and 23 Ngo teaches the inrush current limit output exponentially changes the impedance control output during a turn-on interval so that a device voltage has a slew rate (see Fig. 4). Ngo is silent on the range of 12 volts per 100 milliseconds, however It would have been obvious to one of ordinary skill in the art at the time of the invention to select components with such a time constant to operate with a slew rate of less than 12 volts per 100 milliseconds in order to protect the device of inrush currents.

With respect to claim 8 Ngo teaches the device has impedance that is partially inductive.

With respect to claim 9 and 24 Ngo teaches the timer resets automatically when the connector is disconnected from the source of energization (via startup timer and Auto-restart timer items 57 and 55).

With respect to claim 10, 18 and 25 Ngo teaches the use of a first timer a while Ngo is silent on the use of a transient signal to activate the timer. The timer disclosed in Ngo is triggerable by any voltage signal supplied to the input including that of a transient signal.

With respect to claim 11 Ngo teaches the logic input (sensing input of the control electronics) triggers the limited inrush when the logic input is open circuit, and when the logic input is at a high level.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Rutland-Wallis whose telephone number is 571-272-5921. The examiner can normally be reached on Monday-Thursday 7:30AM-6:00PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Sherry can be reached on 571-272-2084. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MRW



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